

Sub A1

1 1. An underwater sound source which comprises:  
2 a housing having an inner and an outer surface, the housing being adapted to receive fluid  
3 therein to form a fluid column inside the housing, and  
4 a monopole driver positioned within the housing, the underwater sound source resonating  
5 when the monopole driver excites the fluid column.

1 2. The underwater sound source according to claim 1 wherein the underwater sound source  
2 resonates at a frequency within the range of 200 to 1000Hz.

1 3. The underwater sound source according to claim 2 wherein the underwater sound source  
2 resonates at a frequency of about 260 Hz.

1 4. The underwater sound source according to claim 1 wherein the monopole driver is a  
2 spherical monopole.

1 5. The underwater sound source according to claim 4 wherein the housing is cylindrical and  
2 has a center, the monopole driver being positioned within the center of the housing.

1 6. The underwater sound source according to claim 5 wherein the housing has a length of  
2 2.0 meters.

1 7. The underwater sound source according to claim 6 which further comprises an  
2 electronics module.

1 8. The underwater sound source according to claim 7 wherein the electronics module is  
2 positioned on the outer surface of the housing.

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1 9. The underwater sound source according to claim 8 wherein the monopole has an electro-  
2 acoustic conversion efficiency of about 50%.

1 10. The underwater sound source according to claim 9 wherein the housing is a steel free-  
2 flooded pipe.

1 11. The underwater sound source according to claim 10 wherein the fluid is seawater.

1 12. The underwater sound source according to claim 6 which further comprises:  
2 means for positioning the spherical monopole within the center of the housing.

1 13. The underwater sound according to claim 12 wherein the housing has an inner surface  
2 and the means for positioning comprises:

3 a support secured to the inner surface;

4 at least one spoke extending from the support towards the center of the housing, the  
5 member being secured to the spherical monopole.

1 14. The underwater sound source of claim 13 wherein the support is a ring support having a  
2 perimeter.

1 15. The underwater sound source according to claim 14 which further comprises:  
2 at least four equally spaced spokes attached to the ring support and extending from the  
3 support toward the center of the housing, the spokes being secured to the spherical monopole.

4 16. The underwater sound source according to claim 15 wherein the housing has an  
5 equatorial plane, the ring support, spokes, and spherical monopole being positioned in the  
6 equatorial plane.

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